

# **ASSEMBLY MANUAL**

# 5810 & 5830 LEVEL LIFT HITCH CHISEL PLOW

PO Box 1030 Wahpeton, ND 58074 PH (701) 642-2621 Fax (701) 642-3372 www.wil-rich.com

#### PERSONAL SAFETY IS IMPORTANT!

ALL PERSONNEL INVOLVED WITH THE ASSEMBLY AND/OR OPERATION OF THIS EQUIPMENT MUST BE INFORMED OF PROPER SAFETY PROCEDURES. OPERATOR'S AND ASSEMBLY MANUALS PROVIDE THE NECESSARY INFORMATION. IF THE MANUAL IS LOST FOR A PARTICULAR IMPLEMENT, ORDER A REPLACEMENT AT ONCE. OPERATOR'S AND ASSEMBLY MANUALS ARE AVAILABLE AT NO CHARGE UPON REQUEST.

**ADDRESS INQUIRIES TO:** 

**WIL-RICH LLC** 

**PO BOX 1030** 

**WAHPETON, ND 58074** 

PH (701)642-2621 FAX (701)642-3372

Remove all wires and arrange the parts conveniently.

NOTE: Always wear safety glasses or goggles and be careful when cutting wires and steel bands as they are under tension and will spring back when cut.

Wherever the terms "left" and "right" are used, it must be understood to mean from a position behind and facing the machine.

Lubricate all bearings and moving parts as you proceed and make sure they work freely.

Loosely install all bolts connecting mating parts before final tightening.

When tightening bolts, they must be torqued to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight.

On new machines, all nuts and bolts must be rechecked after a few hours of operation.

GRADE 2	(	SRADE	5	GRADE 8			
TORQUE IN FOOT POUNDS							
BOLT DIA	3/8	1/2	5/8	3/4	7/8	1	
HEX HEAD	9/16	3/4	15/16	1-1/8	1-5/1	1-1/2	
UNC GR2	18	45	89	160	252	320	
UNC GR5	30	68	140	240	360	544	
UNC GR8	40	100	196	340	528	792	
UNF GR2	21	51	102	178	272	368	
UNF GR5	32	70	168	264	392	572	
UNF GR8	48	112	216	368	792	840	

#### CAUTION

TO AVOID INJURY AND/OR MACHINE DAMAGE:

- Refer to Operator's Manual for safety instructions.
- Do not stand or climb on machine when operating.
- Use clean hazard flashers and SMV sign when transporting.
- Observe highway traffic regulations.

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#### ASSEMBLY INFORMATION

When replacing a bolt, use only a bolt of the same grade or higher. Except in shear bolt applications, where you must use the same grade bolt.

Bolts with no markings are grade 2

Grade 5 bolts furnished with the machine are identified by three radial lines on the head.

Grade 8 bolts furnished with the machine are identified by six radial lines on the head.

All U-bolts are grade 5.



THIS SYMBOL USED TO CALL YOUR ATTENTION TO INSTRUCTIONS CON-CERNING YOUR PERSONAL SAFETY. BE SURE TO OBSERVE AND FOLLOW THESE INSTRUCTIONS

#### **A CAUTION**

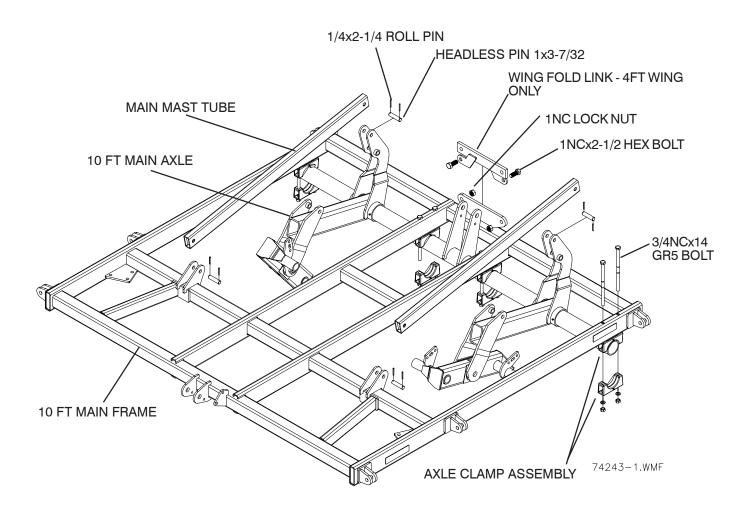
Failure to follow these instructions may result in personal injury and/or equipment damage.

- Just before and during operation be sure no one is on or around the implement.
- Before activating the hydraulic system, check hoses for proper connections.
- Before lowering the wings for the first time, make sure the entire system has been charged with oil.
- With wings down always install hydraulic cylinder channel lock(s) for transporting.

## **10FT MAIN FRAME**

Note: Adequately support frame during assembly, (allow sufficient ground clearance for shank installation).

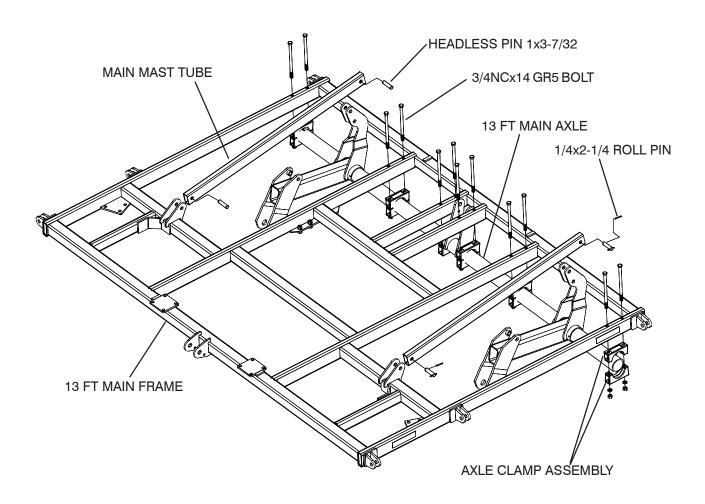
Note: See shank placement pages for correct locations of all add-on stubs.



FRAMES ARE SUPPLIED WITH MAIN AXLES ASSEMBLED IN FRAME. SEE PAGE 20 FOR ADDITIONAL AXLE ASSEMBLY INFORMATION

### **13FT MAIN FRAME**

Note: See shank placement pages for correct locations of all add-on stubs.



FRAMES ARE SUPPLIED WITH MAIN AXLES ASSEMBLED IN FRAME. SEE PAGE 20 FOR ADDITIONAL AXLE ASSEMBLY INFORMATION

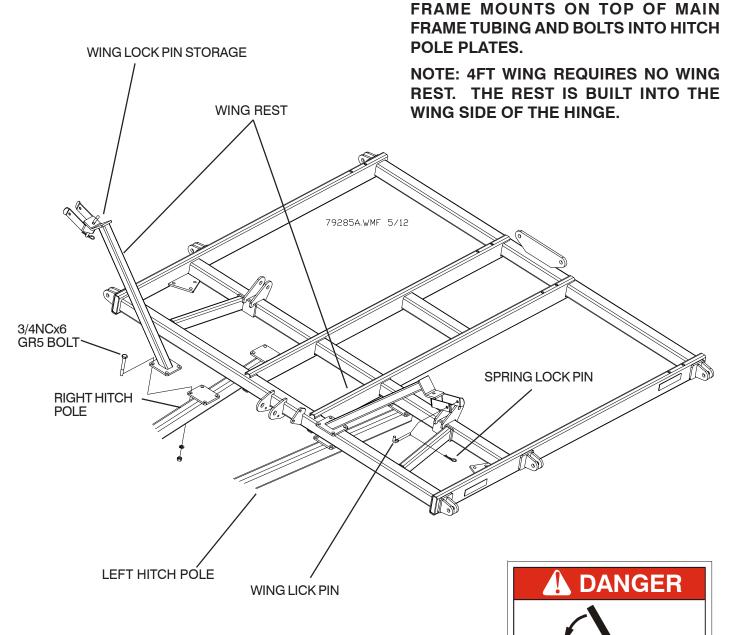
## **A** CAUTION

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- Use clean hazard flashers and SMV sign when transporting.
- Observe highway traffic regulations.

23325

### 5810 WING REST



Use wing lock pin to lock wing only when unit is to be stored to prevent unplanned unfolding. Store pin in lower hole when not in use. Lock pin can be used on either or rear wing lock, preferably the front for access.

#### STAND CLEAR AT ALL TIMES:

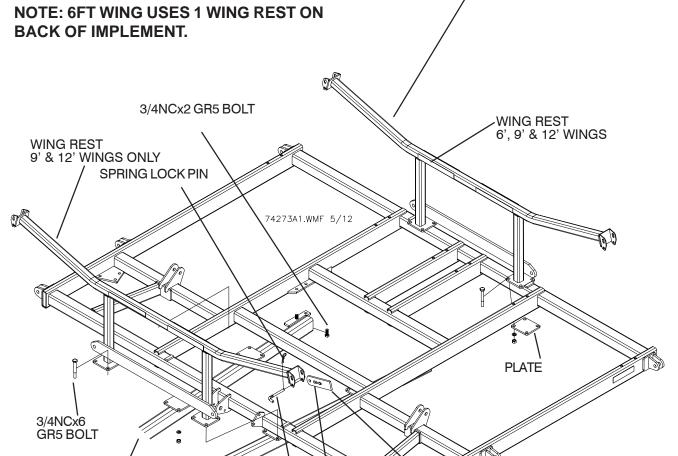
NOTE: WING REST ON FRONT OF MAIN

- Never walk or stand in the path of the wings.
- Completely lower wings before performing service or adjustments.
- Failure to do so will result in serious injury or death.

#### **5830 WING REST**

NOTE: WING REST ON FRONT OF MAIN FRAME MOUNTS ON TOP OF MAIN FRAME TUBING AND BOLTS INTO HITCH POLE PLATES.

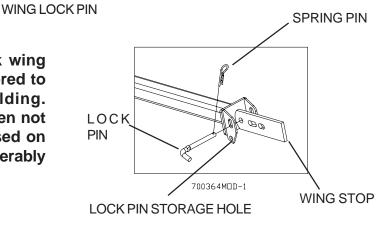
NOTE: BEFORE MOUNTING THE REAR WING REST DETERMINE IF PLANNED REAR ATTACHEMENTS NEED TO BE MOUNTED FIRST.



Use wing lock pin to lock wing only when unit is to be stored to prevent unplanned unfolding. Store pin in lower hole when not in use. Lock pin can be used on either or rear wing lock, preferably the front for access.

LEFT HITCH POLE

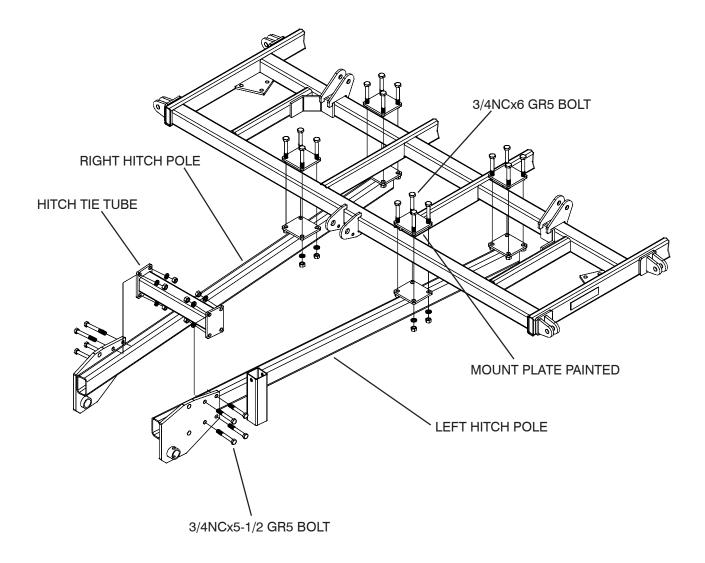
RIGHT HITCH POLE



WING REST PLATE

WING STOP VARIES BY WING COMBINATION

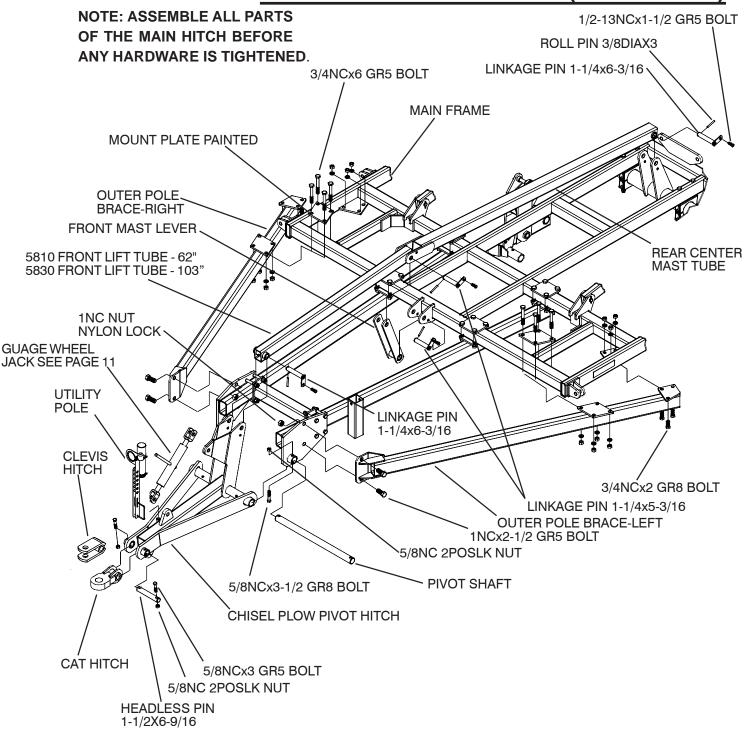
## 10FT & 13FT PIVOT HITCH

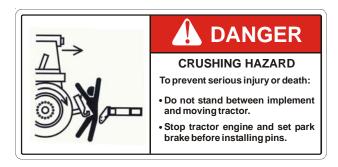


NOTE: SEE PAGE 9 FOR CONTINUED PIVOT HITCH ASSEMBLY

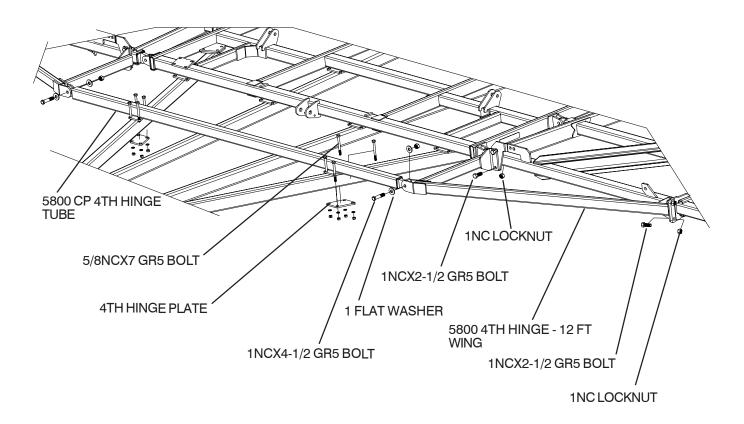
NOTE: ASSEMBLE ALL PARTS OF THE MAIN HITCH BEFORE ANY HARD-WARE IS TIGHTENED.

## 10FT & 13FT PIVOT HITCH (CONTINUED)

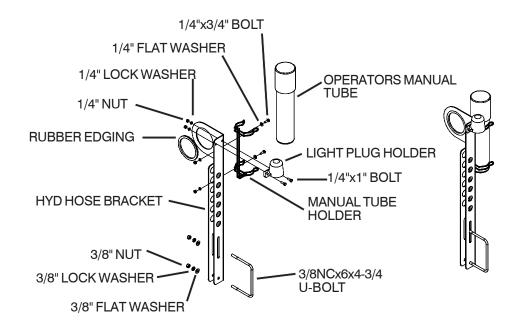




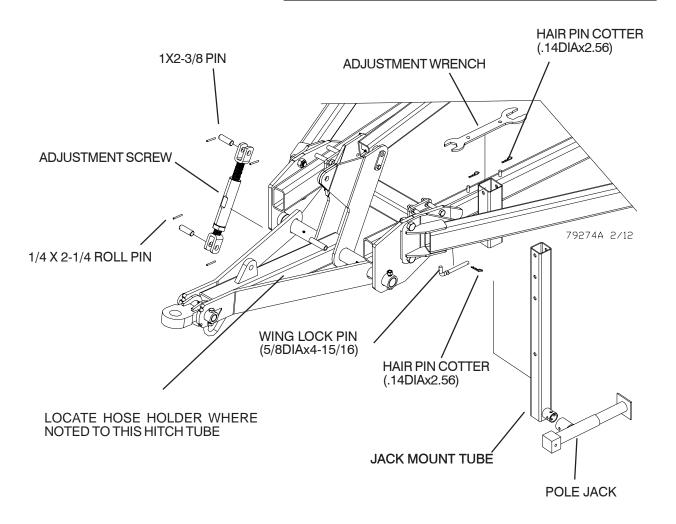
#### FRONT HINGE TUBE ASSEMBLY - 13 FT MAIN FRAME

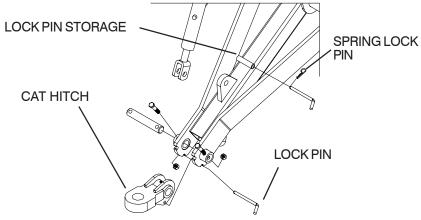


#### **UTILITY POLE ASSEMBLY**



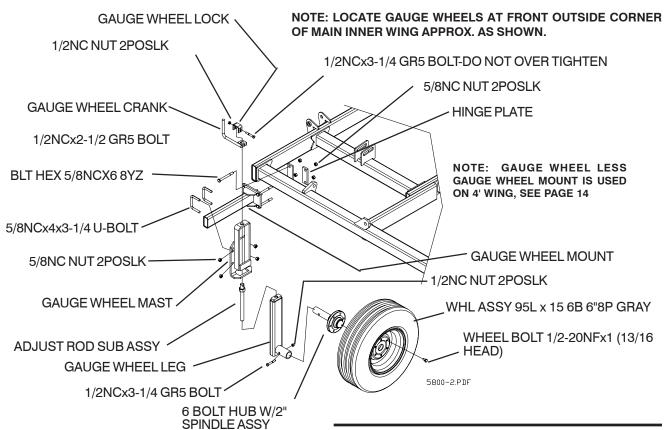
### **JACK MOUNT & FRONT ADJUST**



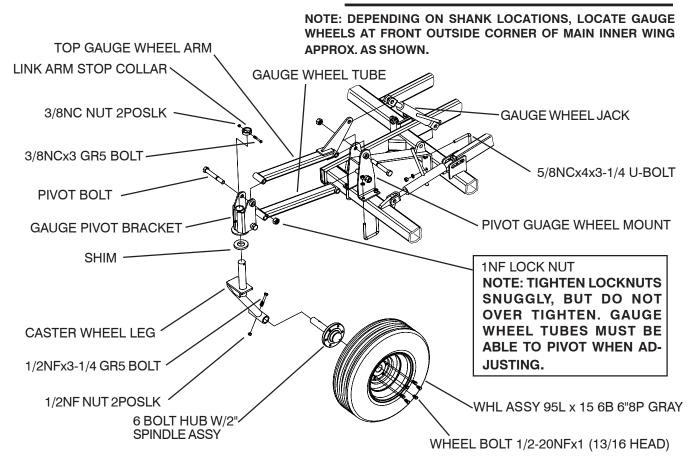


ON UNITS PRODUCED 2010 & UP - WITH UNIT FULLY RAISED AND UNHITCHED, INSERT LOCK PIN INTO CAT HITCH AS SHOWN TO HOLD FOR HITCHING. REMOVE PIN AND STORE WHEN OPERATING

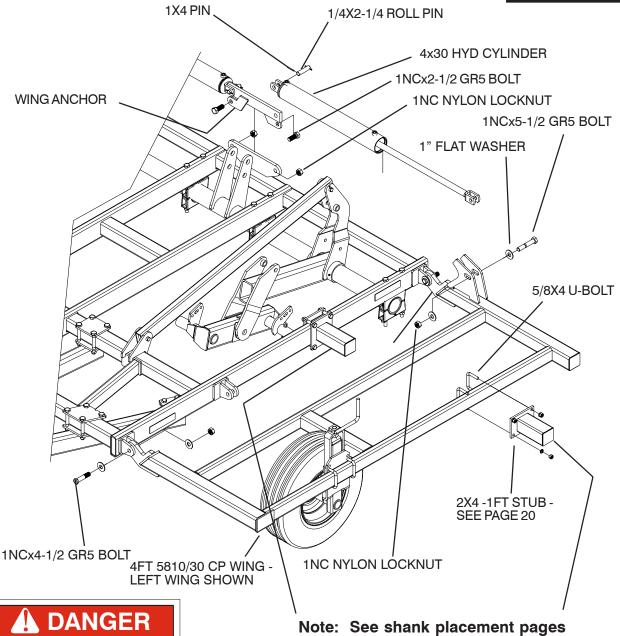
#### **RIGID GAUGE WHEEL**



#### **CASTERING GAUGE WHEEL**



#### **4FT WING**





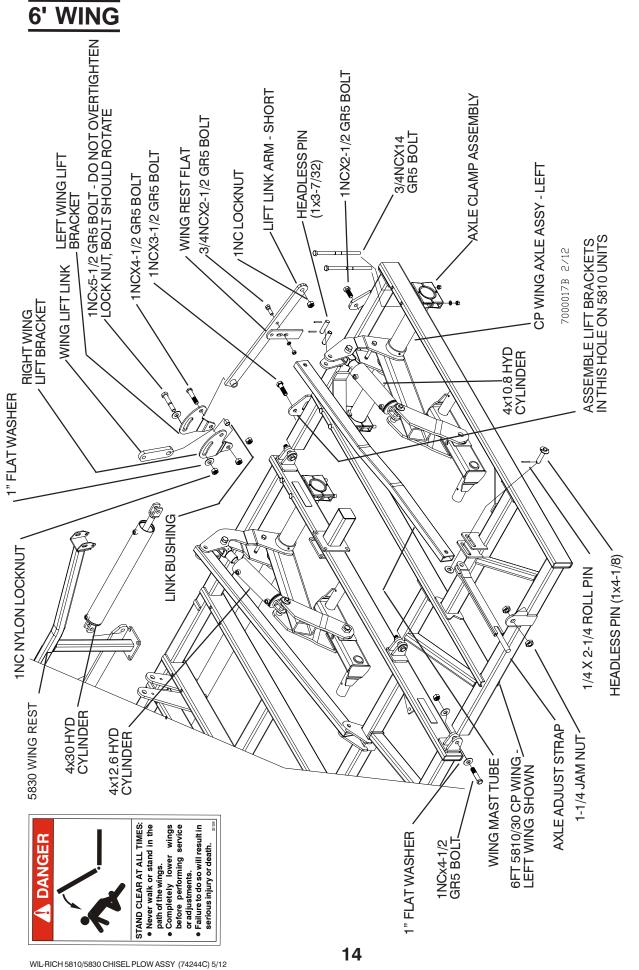


#### **STAND CLEAR AT ALL TIMES:**

- Never walk or stand in the path of the wings.
- Completely lower wings before performing service or adjustments.
- Failure to do so will result in serious injury or death.

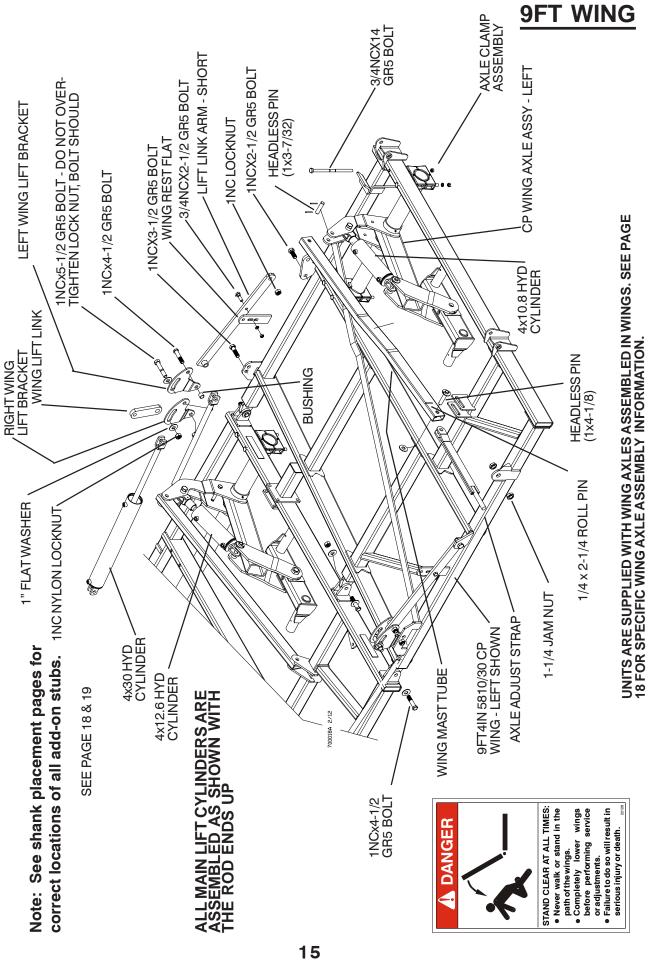
for correct locations of all add-on stubs.

ALL MAIN LIFT CYLINDERS ASSEMBLEDWITH THE ROD ENDS UP ARE

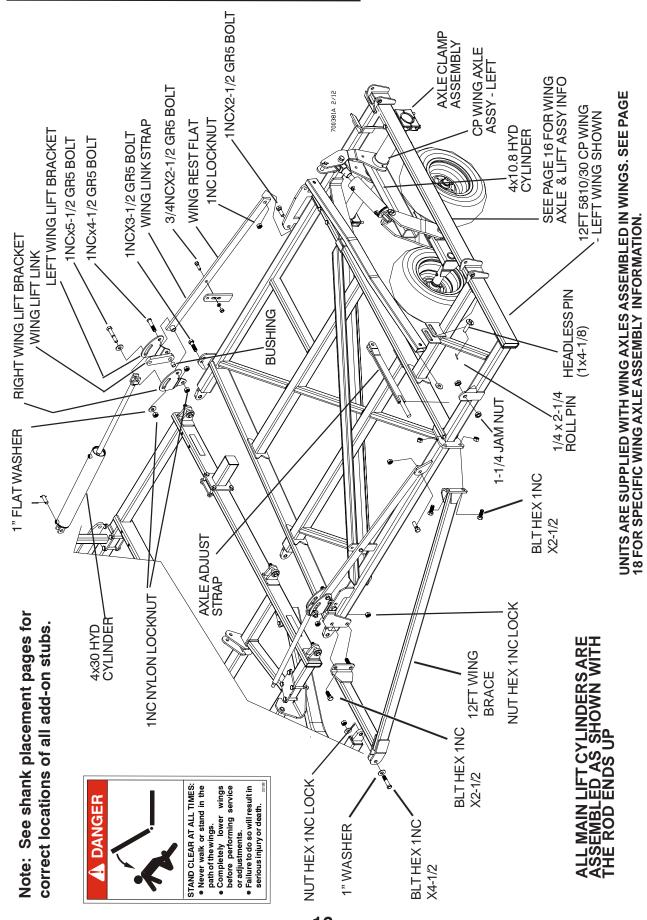


ALL MAIN LIFT CYLINDERS ARE AS-SEMBLED AS SHOWN WITH THE ROD ENDS UP

UNITS ARE SUPPLIED WITH WING AXLES ASSEMBLED IN WINGS. SEE PAGE 18 FOR SPECIFIC WING AXLE ASSEMBLY INFORMATION.

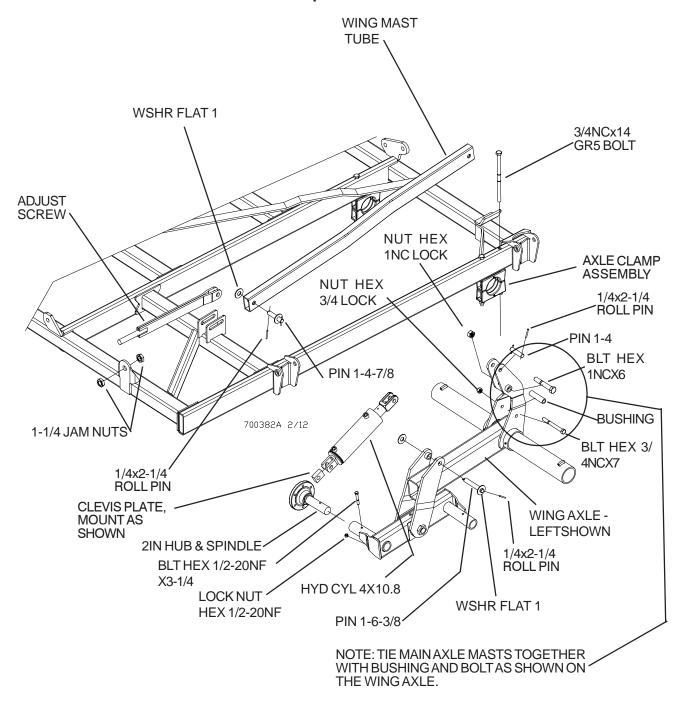


#### 12 FT INNER WING ASSEMBLY



## **WING AXLE ASSEMBLY**

Note: Hardware is secured with matching hex nuts and lock washers unless specified.



## ALL MAIN LIFT CYLINDERS ARE ASSEMBLED AS SHOWN WITH THE ROD ENDS UP

NOTE: CYLINDERS ASSEMBLED WITH ROD UP AS SHOWN

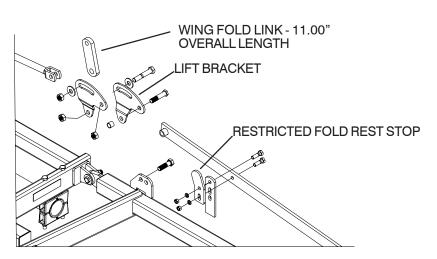
## 3' OUTER WING

Note: See shank placement pages for correct locations of all add-on - PIN 1X3-1/8 stubs. 4x24 HYD CYLINDER 1/4x2-1/4 **ROLL PIN** PIN 1X5-1/8 WSHR FLAT 1 **BLT HEX** 3/4NCX4 1 FT SHANK STUB PIN ROLL 5/16 DIAx2 SHANK PLATE HEADLESS PIN 1x6-13/16 3FT CP WING - LEFT (SHOWN)

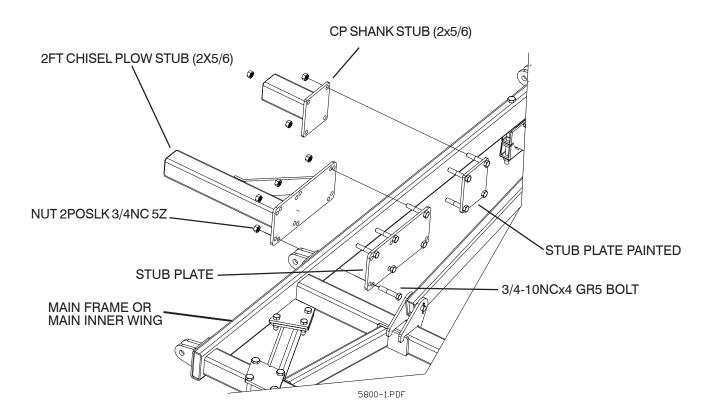
Note: Hardware is secured with matching hex nuts and lock washers unless specified.

Note: On unit with 12 ft inner wings and 3 ft outer wings unigue wing fold links, brackets and rest stops are required.

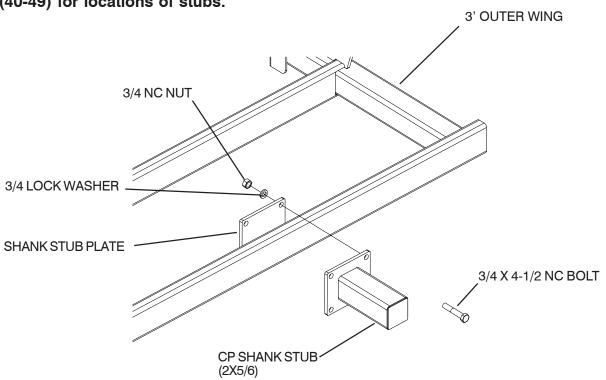




## **STUB EXTENSIONS**

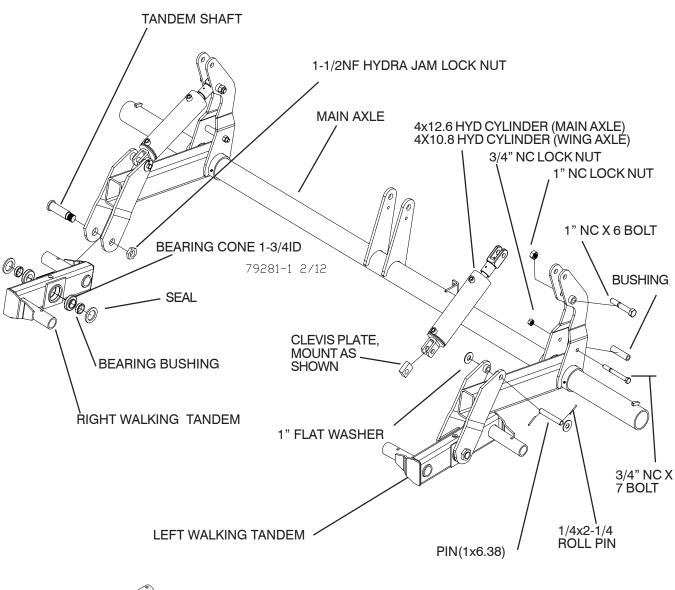


Note: See shank placement pages (40-49) for locations of stubs.

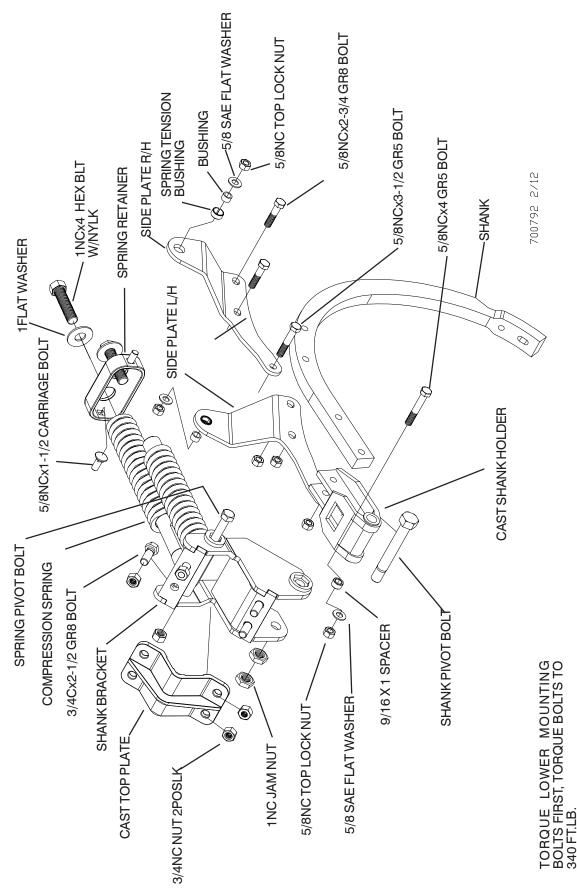


#### **5800 MAIN AXLE AND WALKING TANDEM**

MAIN FRAME AXLE (13 FT) SHOWN, MAKE CERTAIN THE CORRECT 4X12.6 IN. CYLINDERS ARE INSTALLED WITH THE RODS UP AS SHOWN. MOUNT CYLINDERS ON WING AXLE IN SIMILAR MANNER. MAIN FRAME AND WING AXLES ARE SUPPLIED WITH WALKING TANDEMS ASSEMBLED.

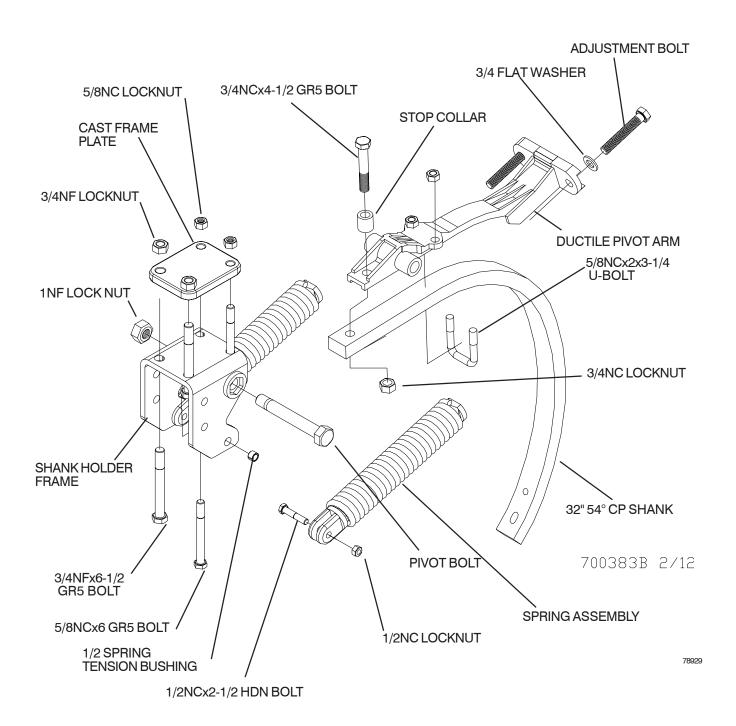


### **1000 LB CP SHANK ASSEMBLY**



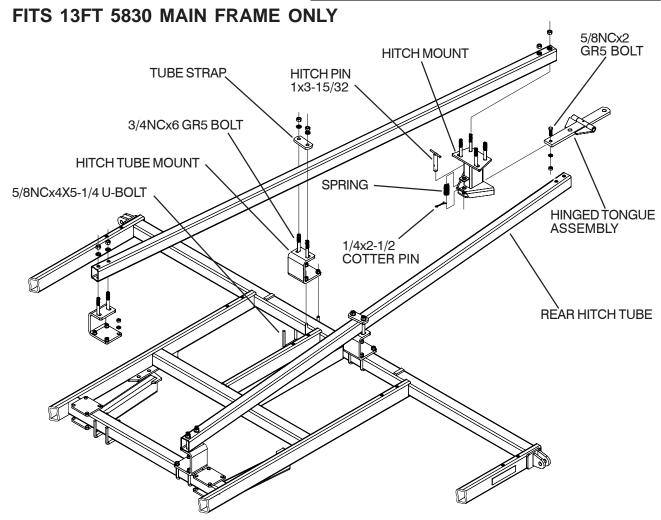
TORQUE ALL HARDWARE TO FT/LB NOTED ON PAGE 3

### 32IN 54 DEGREE 650 LB CP SHANK ASSEMBLY



TORQUE ALL HARDWARE TO FT.LB. NOTED ON PAGE 3

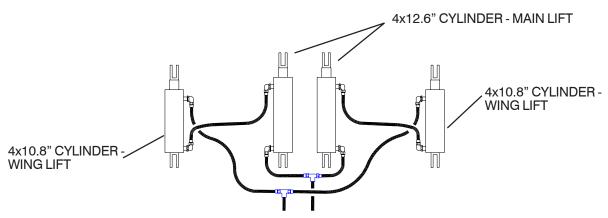
#### **UNIVERSAL AUXILIARY HITCH**



USE OF THIS HITCH MAY PREVENT USE OF THE SINGLE POINT DEPTH CONTORL OR MOUNTING OF LIQUID TANKS.

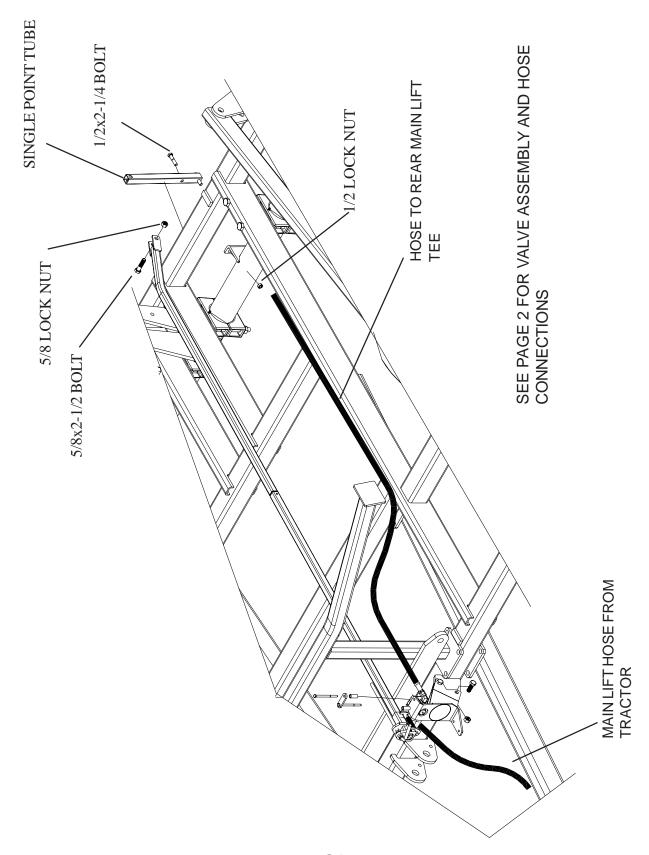
#### MAIN LIFT BYPASS SYSTEM INFO

ALL MAIN LIFT HYDRAULIC SYSTEMS CONSIST OF A 4X12.6" STROKE CYLINDER ON THE MAIN FRAME CONNECTED AS SHOWN TO A 4X10.8" STROKE WING LIFT CYLINDER.

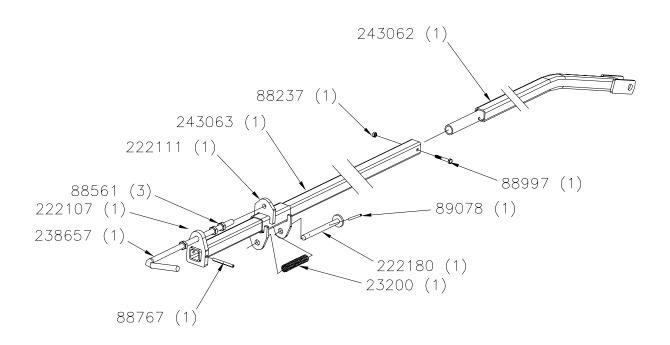


CYLINDERS ARE MOUNTED AT THE LIFT LOCATIONS WITH THE ROD END UP, THE BASE END ATTACHED TO THE MAIN OR WING AXLE.

## SINGLE POINT DEPTH CONTROL ASSY

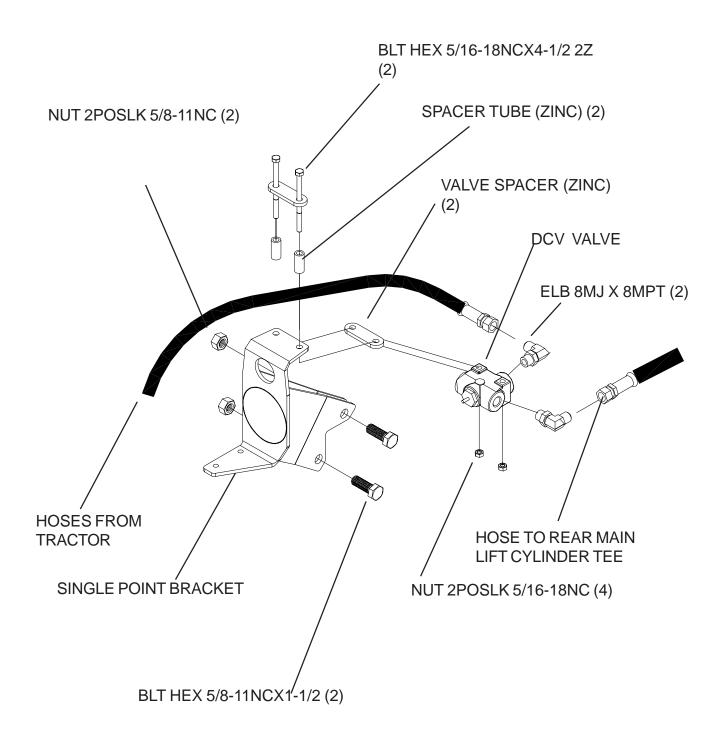


## SINGLE POINT TUBE ASSY



PART NO.	DESCRIPTION	QTY
222107	ADJUST EAR	1
222111	SLIDE ADJUST	1
222180	SPRING PIN (ZINC)	1
23200	SPRING	1
238657	ADJUST CRANK - LONG	1
243062	CP SINGLE POINT TUBE	1
243063	SINGLE POINT TUBE	1
88237	NUT 2POSLK 1/4-20NC 5P	1
88561	NUT JAM 1/2-13NC 5Z	3
88767	PIN ROLL 1/4DIAX2-1/2 Z	1
88997	BLT HEX 1/4-20NC X 1-3/4 5Z	1
89078	PIN ROLL 3/16X1-3/4 Z	1

## SINGLE POINT VALVE ASSY



ALL HOSES ARE PROVIDED IN THE BASE UNIT HYDRAULIC BOX OF PARTS

#### 5810/30 WING FOLD HYDRAULIC ASSEMBLY INFORMATION

Before assembling any of the various lift and wing fold cylinders please do the following.

#### WING FOLD SYSTEM

Identify the correct cylinders and their location. The inner wings utilize either single or double 4x30 lift cylinders with the outer wing requiring 24" or 30" stroke cylinders. Refer to the following circuit diagram for information to identify the required cylinders.

Attach the base end of the cylinders to the base anchor point and connect the hydraulic lines as noted. By using a wood block or other device support the rod end of the cylinders to allow the rods to be fully extended without contacting any part of the machine. Apply pressure to the system and check for leaks. Fully extend all the wing fold cylinders. This process may take some time as the oil volume requirements can be high and each cylinder has an integral port restrictor for safety reasons. Once all the cylinders have been fully extended, reverse the oil flow and fully retract all cylinders. This process ensures that all cylinders are properly charged before final assembly.

Extend the wing fold cylinders and attach all rod ends to the corresponding anchors. Secure all pins with the pins or hardware as specified.

#### MAIN LIFT SYSTEM

As with the wing fold system, identify the correct cylinders that are required. All WIL-RICH chisel plows use a sequencing system to lift and control the operational depth. All cylinders are mounted with the rod end up, the base of the cylinders are attached to the axle leg - refer to the various assembly pages.

As shown the main frame utilizes the longest stroke cylinders (4x12.6) with the base end attached to the main axle leg. The inner wings use the next shorter cylinder (4x10.8) mounted to the axle leg in the same manner. Attach the base end of the correct cylinders to the main and wing axles as shown. Connect the required hydraulic hoses in the manner shown.

Do not attach the rod ends of these cylinders at this point in time. Support the rod end of the cylinders with a wood block.

With the hoses connected and secured apply pressure to the system, make certain rod do not contact any obstructions. The main frame cylinders will extend fully and move to the bypass position before the wing cylinders will extend.

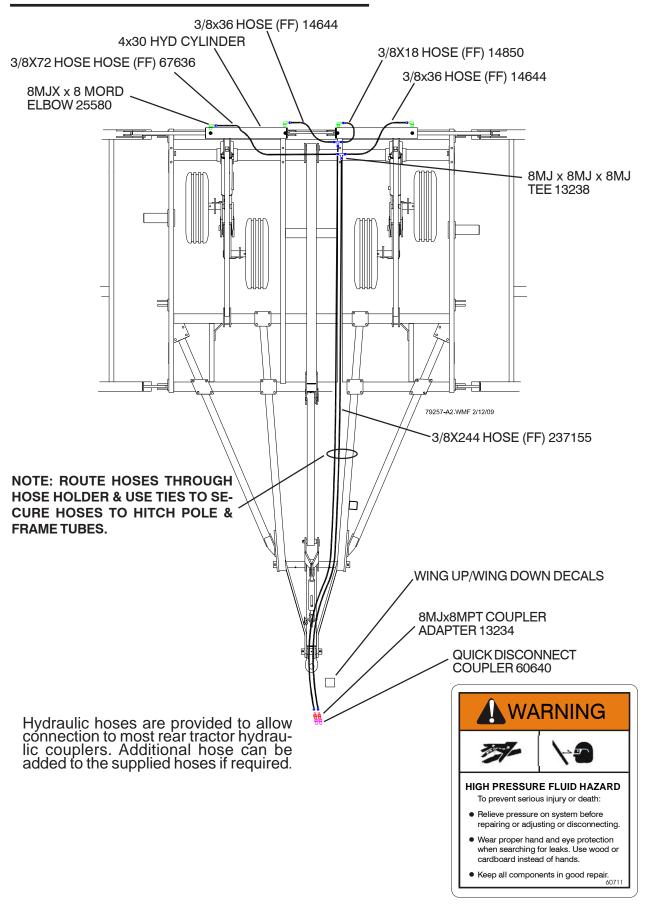
Once the main frame cylinders have been fully extended oil will pass to the next cylinder in the circuit, the wing lift cylinders.

Because oil must move through a small bypass hole in the main frame cylinder the process can be slow and will require sufficient system pressure (2500 psi) for proper system charging and sequencing. Once the wing cylinders have been fully extended they will move to their bypass position and allow oil to fill the return line to the tractor. This process is intended to purge air from the system, filling all cylinders and supply hoses with oil. Once the system has been fully charged and extended, reverse the oil flow and retract the cylinders. The cylinders should fully retract in sequence, if the cylinders do not there still may be air in the system. Repeat the process of fully extending the cylinders and holding pressure on the system to purge the circuit.

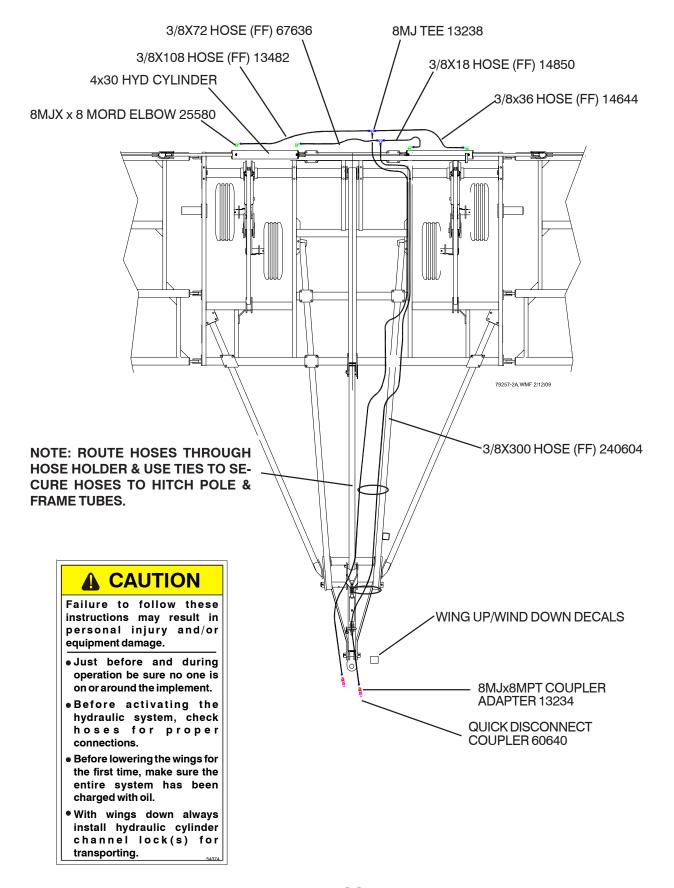
Once the system has been purged remove any blocks, extend the cylinders and secure the rod ends to the appropriate anchor point. Raise the unit and ascertain that the cylinders are moving properly.

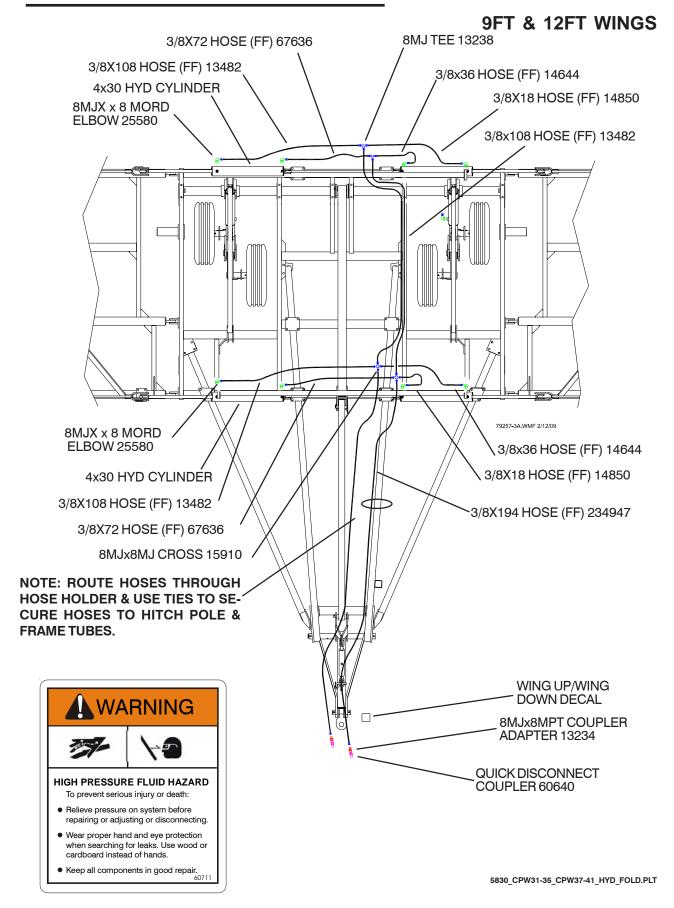
Charging the main lift system in this manner will be the best way to initially sequence the lift circuit. As the unit is first used and periodically after it may require that the unit be held in the fully raised position to sequence the lift.

NOTE: The system will only bypass when all the cylinders are fully extended or allowed to fully extend. If there is any restrictions in the lift geometry adjustments that prevent all the cylinders from fully extending the system will not bypass properly.

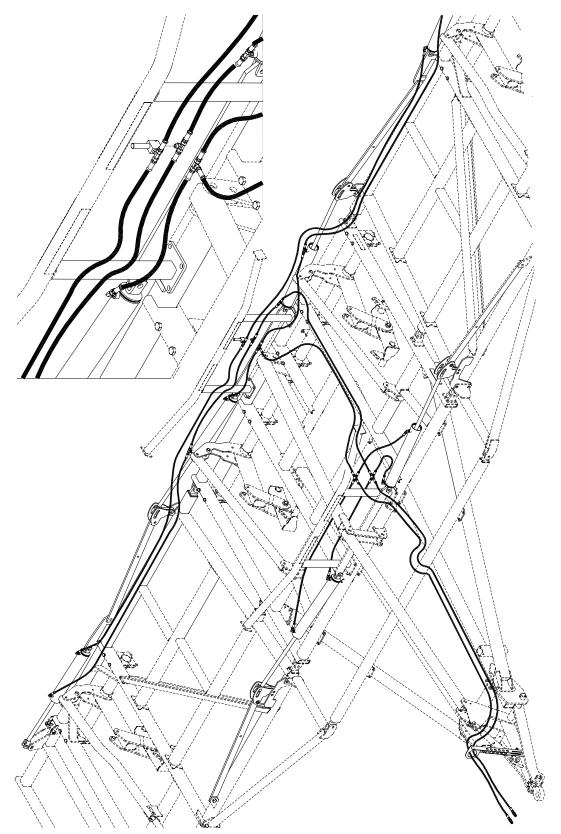


#### **6FT WINGS**



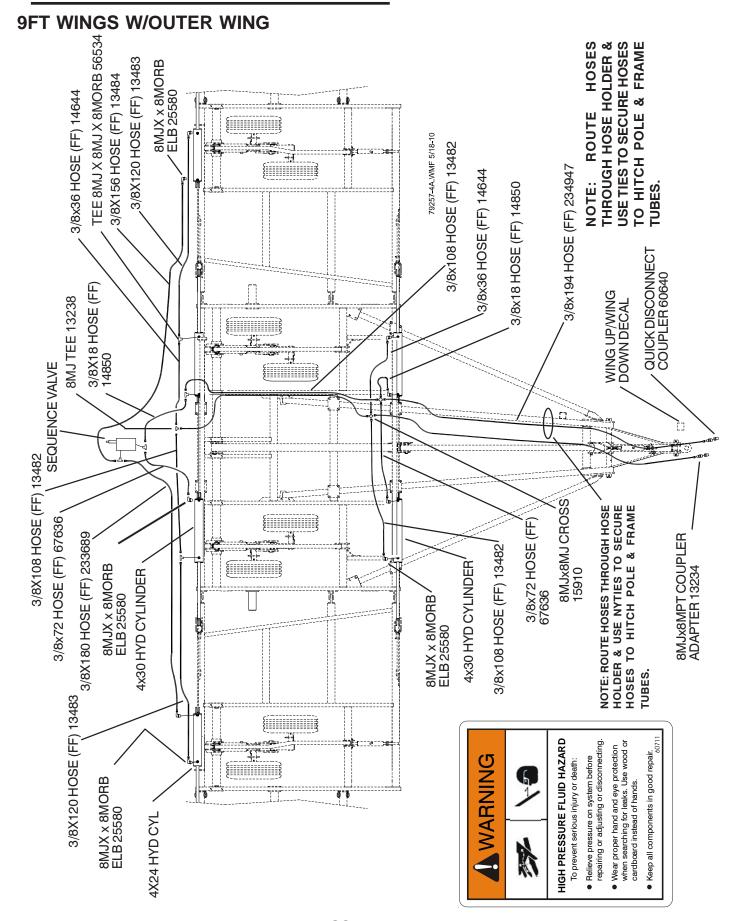


#### 9FT WINGS W/OUTER WING

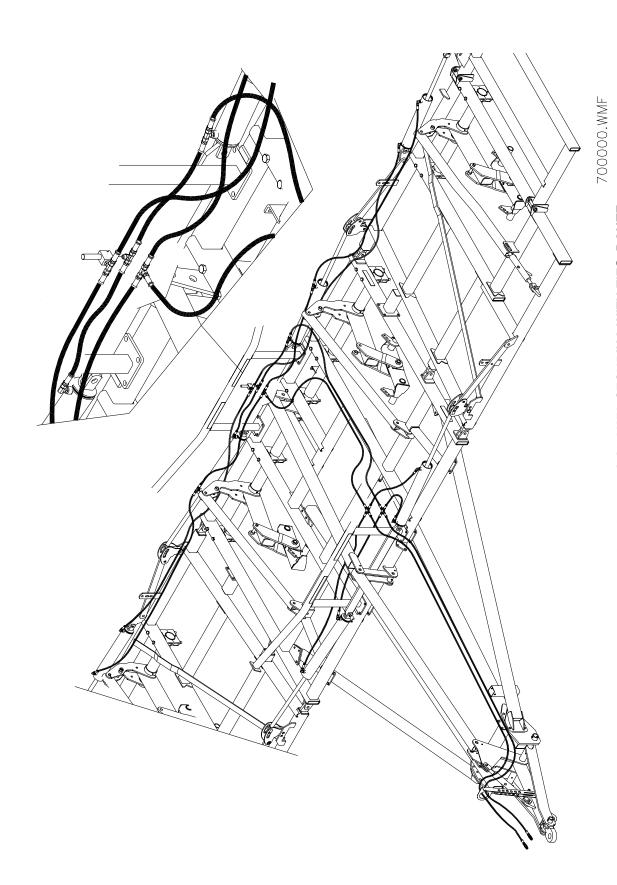


LOCATE HOSES ALONG THE FRAME MEMBERS APPROX AS SHOWN, SECURING WITH TIES. ROUTE AND SECURE HOSES AROUND HINGES AND AWAY FROM PINCH POINTS.

SOME FRAME PARTS ARE NOT SHOWN TO CLARIFY SUGGESTED HOSE ROUTING LOCATIONS. REFER TO PAGE 33 FOR HOSE AND FITTING CALLOUTS.

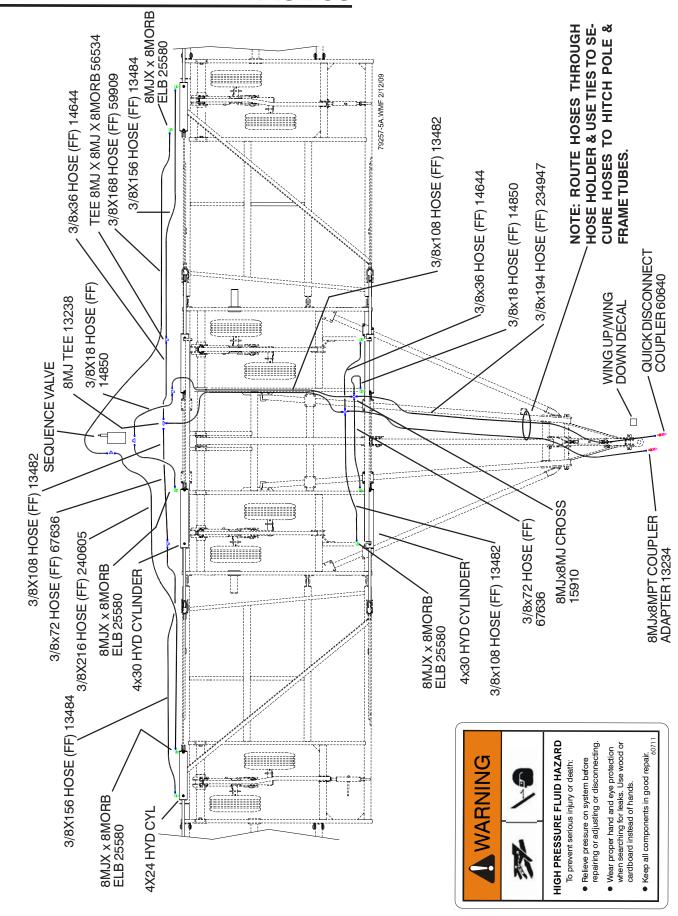


# 5830 WING FOLD HYDRAULICS 12FT WINGS W/OUTER WING

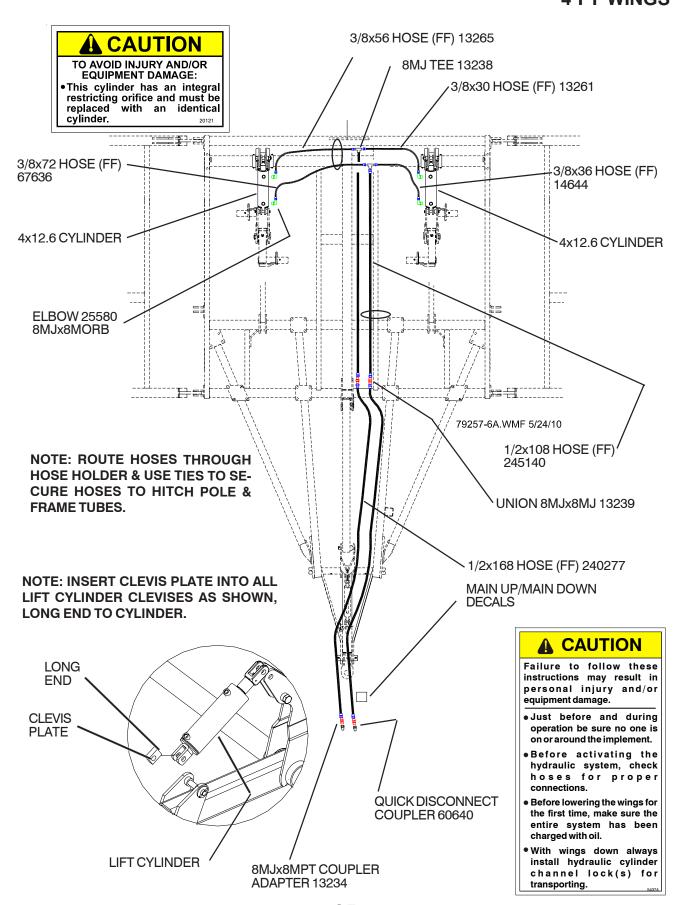


LOCATE HOSES ALONG THE FRAME MEMBERS APPROX AS SHOWN, SECURING WITH TIES. ROUTE AND SECURE HOSES AROUND HINGES AND AWAY FROM PINCH POINTS. SOME FRAME PARTS ARE NOT SHOWN TO CLARIFY SUGGESTED HOSE ROUTING LOCATIONS. REFER TO PAGE 35 FOR HOSE AND FITTING CALLOUTS.

#### 12FT WINGS W/OUTER WING

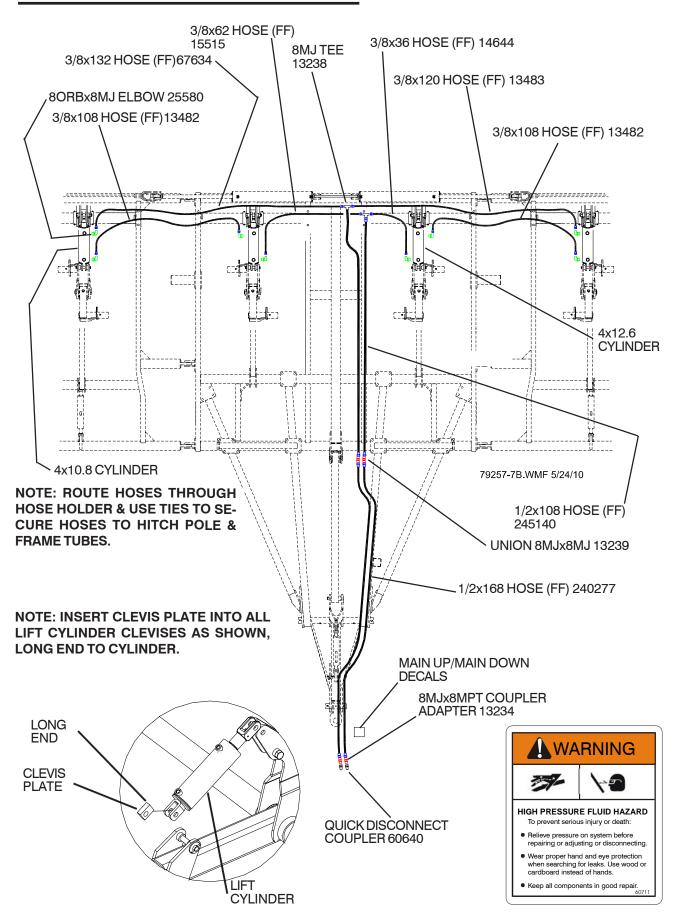


# 5810 MAIN LIFT HYDRAULICS 4 FT WINGS



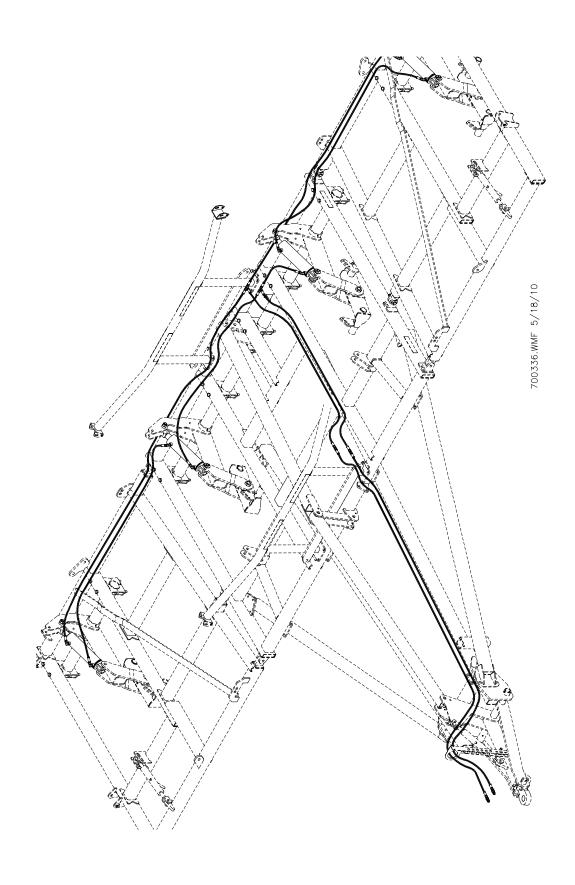
### **5810 MAIN LIFT HYDRAULICS**

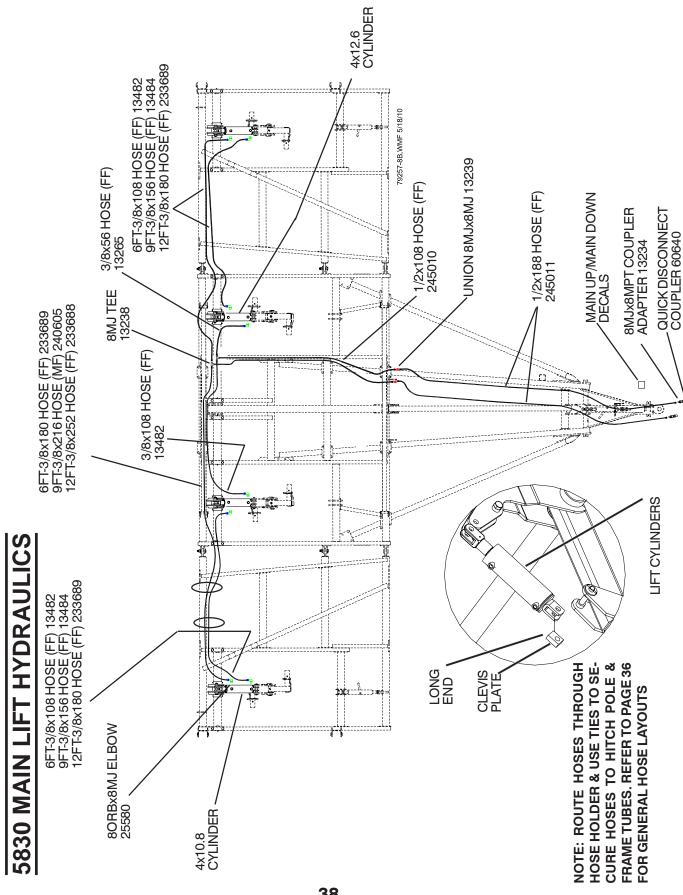
#### 6 FT WINGS



# **5830 MAIN LIFT HYDRAULICS**

#### 5830 UNIT SHOWN, 5810 SIMILAR





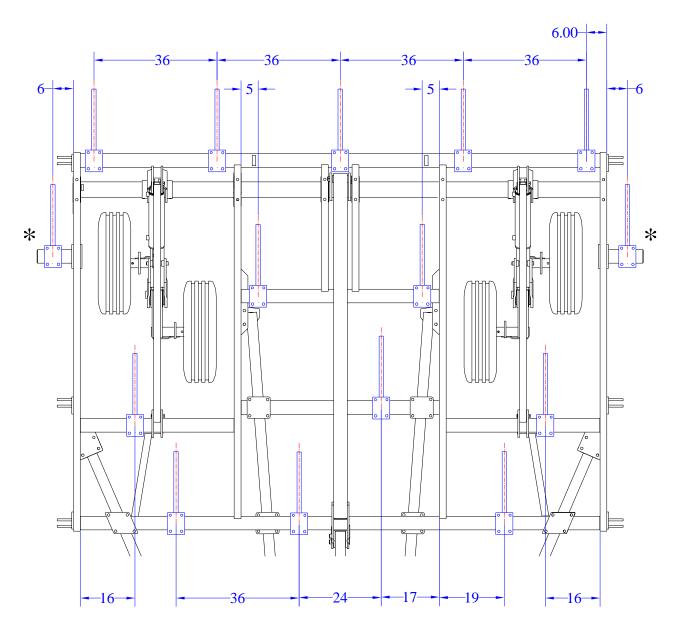
### **SHANK ASSEMBLY**

#### **Shank Mounting**

- 1. Position the shanks under a properly supported frame in the locations noted in the shank placement diagrams.
- 2. Proper mounting specifies that the bolts be assembled through the bottom of the shank bracket as shown on pages 21 and 23.
- 3. The front bolts on the 1000# shank (Page 21) & 650# shank (Page 23) will require that the bolts be positioned in the bracket holes and tapped up into position.
- 4. Support the shank in position under the frame tube and place top shank plate over the bolts, loosely secure with nuts provided as shown.
- 5. To allow for proper tripping, the shanks must clear any frame members. Adjust the shank's lateral position as required.
- 6. Once all shanks have been properly placed, tighten all mounting hardware to the torque settings noted on page 3

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\*-Stubs indicated are additions to main frame.

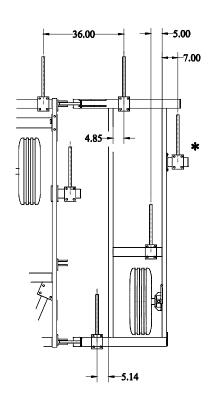


<sup>\*-</sup>Stubs indicated are additions to main frame.

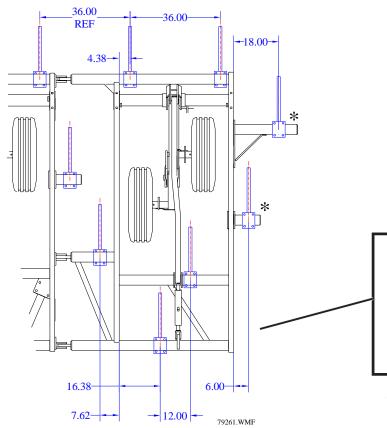
LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK.

ADD ON STUBS CAN BE LOCATED APPROXIMATELY WHERE SHOWN OR MOVED FRONT TO REAR AS WORKING CONDITIONS DICTATE.

### 4FT WING (USED ON 10FT MAIN FRAME ONLY)



#### **6FT WING**



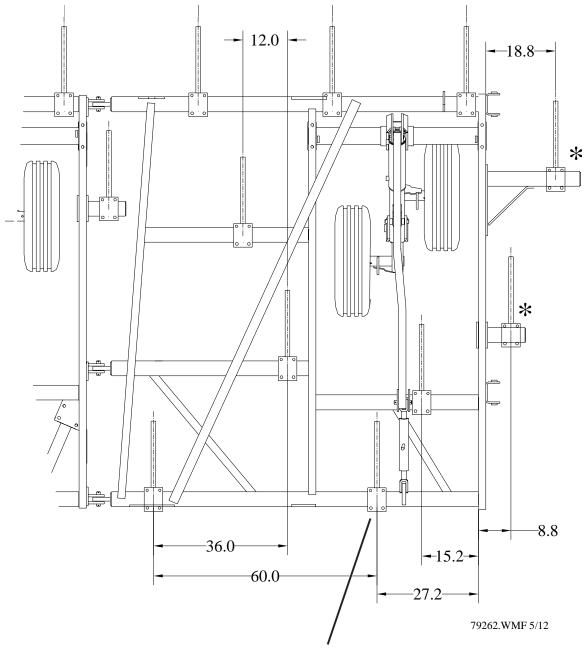
LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK.

#### **Position Note:**

Initially position shank where noted. Check to ensure the shank will clear the adjustment screw when tripping. Move shank laterally as required.

ADD ON STUBS CAN BE LOCATED APPROXIMATELY WHERE SHOWN OR MOVED FRONT TO REAR AS WORKING CONDITIONS DICTATE.

<sup>\* -</sup>Stubs indicated are additions to main frame or wings.



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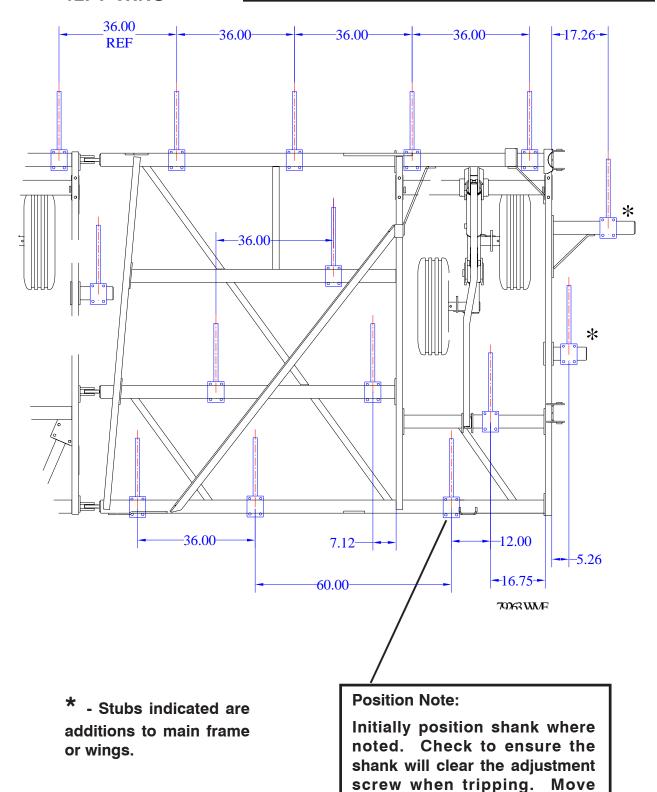
#### **Position Note:**

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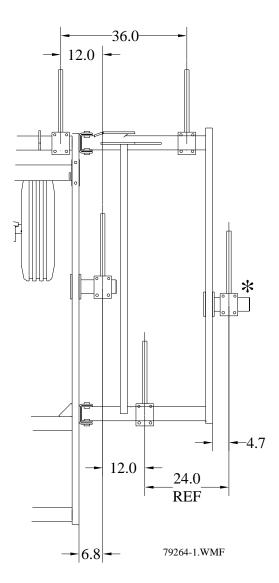
#### 12FT WING

### **SHANK PLACEMENT 12IN SPACING**



LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK.

shank laterally as required.

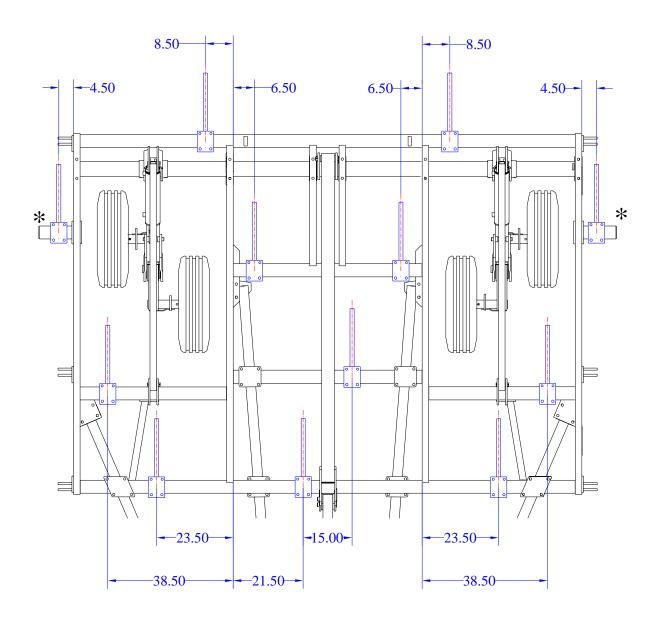


\* - Stubs indicated are additions to main frame.

#### **Position Note:**

Initially position shank where noted. Check to ensure the shank will clear the adjustment screw when tripping. Move shank laterally as required.

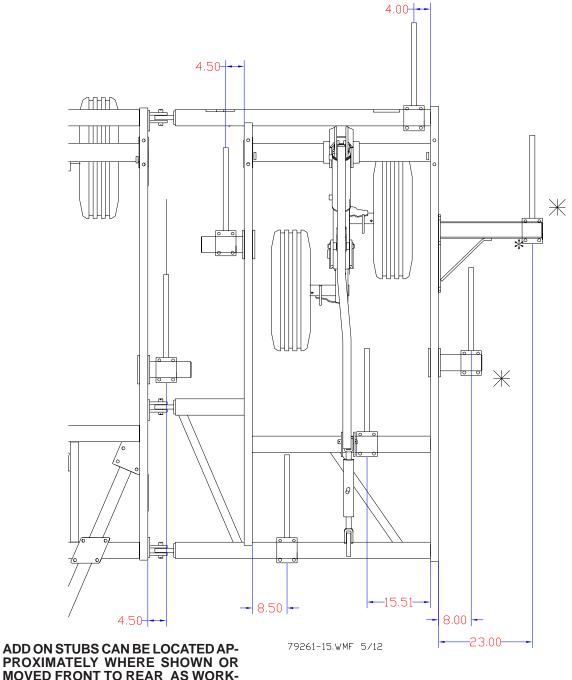
LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK.



\* - Stubs indicated are additions to main frame.

LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK. SHANKS MAY NEED TO BE SHIFTED LATERALLY FOR CLEARANCE AND FIT.

#### **6FT WING**



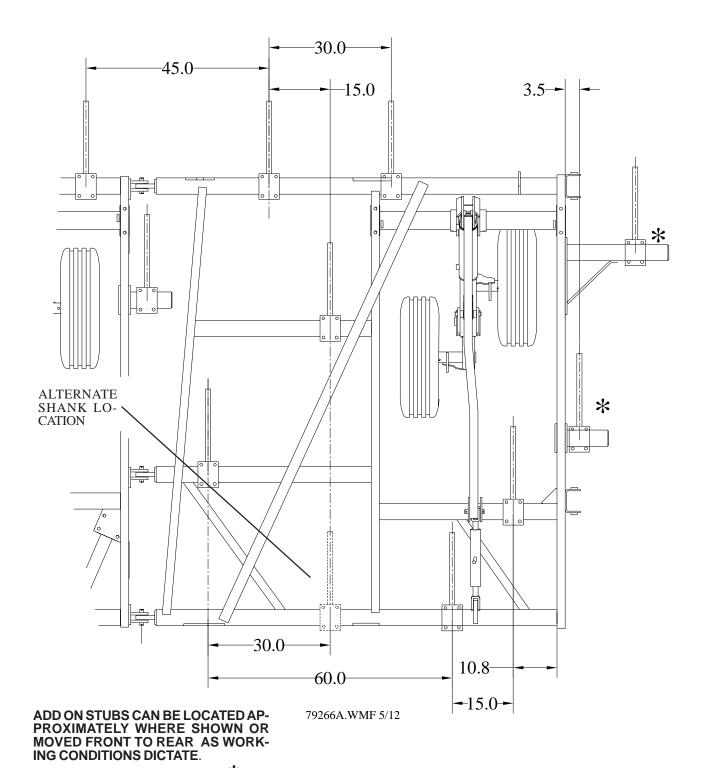
PROXIMATELY WHERE SHOWN OR MOVED FRONT TO REAR AS WORK-ING CONDITIONS DICTATE.

\* - Stubs indicated are additions to main frame or wings.

LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMP-ING CONFIGURATION AND FINAL SHANK POSI-TION IS DEPENDENT ON TYPE OF SHANK. SHANKS MAY NEED TO BE SHIFTED LATERALLY FOR CLEARANCE AND FIT.

#### **Position Note:**

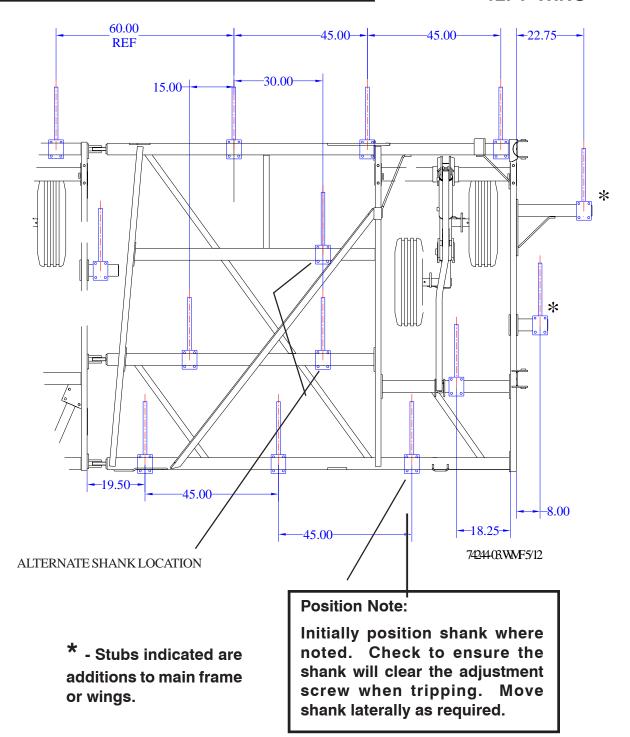
Initially position shank where noted. Check to ensure the shank will clear the adjustment screw when tripping. Move shank laterally as required.



\* - Stubs indicated are additions to main frame or wings.

LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND LOCATION IS DEPENDENT ON TYPE OF SHANK. SHANKS MAY NEED TO BE SHIFTED LATERALLY TO ALLOW CLEARANCE AND FIT. SHANKS CAN BE MOUNTED AT THE "ALTERNATE LOCATION" IF DESIRED WHILE MAINTAINING THE MAXIMUM LATERAL DISTANCE BETWEEN SHANKS.

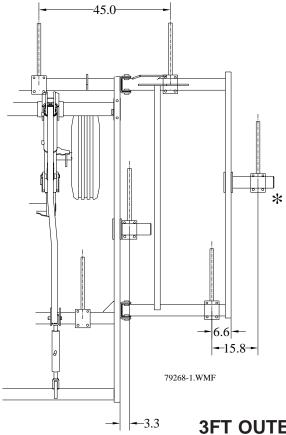
#### 12FT WING



ADD ON STUBS CAN BE LOCATED APPROXIMATELY WHERE SHOWN OR MOVED FRONT TO REAR AS WORKING CONDITIONS DICTATE.

LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND LOCATION IS DEPENDENT ON TYPE OF SHANK. SHANKS MAY NEED TO BE SHIFTED LATERALLY TO ALLOW CLEARANCE AND FIT. SHANKS CAN BE MOUNTED AT THE "ALTERNATE LOCATION" IF DESIRED WHILE MAINTAINING THE MAXIMUM LATERAL DISTANCE BETWEEN SHANKS.

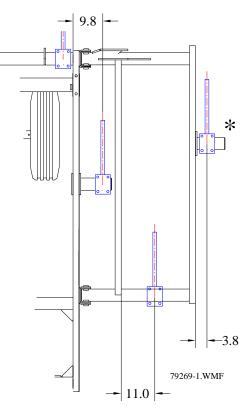
#### **3FT OUTER WING on 9FT INNER WING**



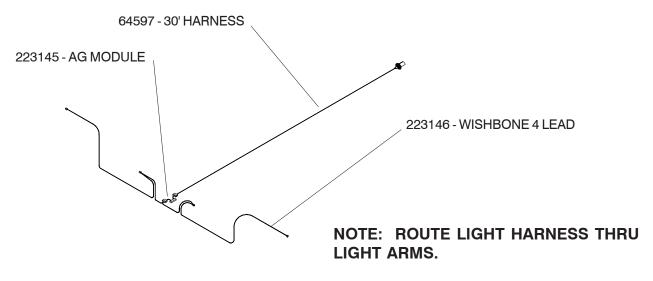
**3FT OUTER WING on 12FT INNER WING** 

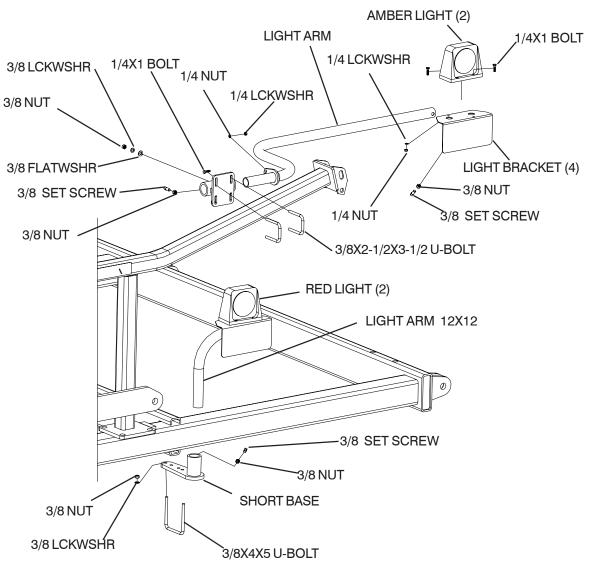
LOCATIONS INDICATE CORRECT SHANK MOUNTING POSITIONS ONLY. ACTUAL CLAMPING CONFIGURATION AND FINAL SHANK POSITION IS DEPENDENT ON TYPE OF SHANK. SHANKS MAY NEED TO BE SHIFTED LATERALLY FOR CLEARANCE AND FIT.

\* - Stubs indicated are additions to main frame or wings.

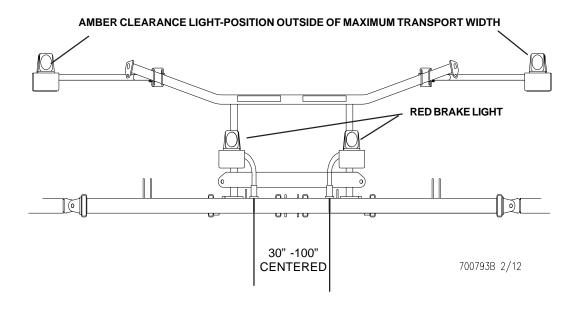


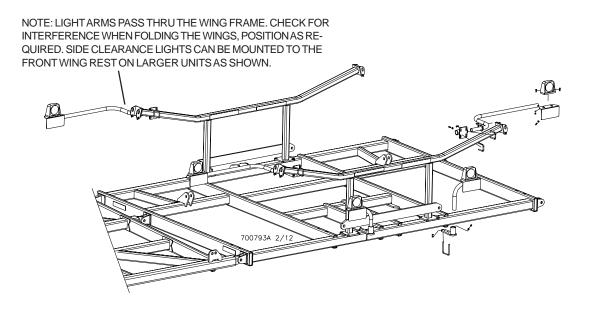
### **SAFETY LIGHT ASSEMBLY**



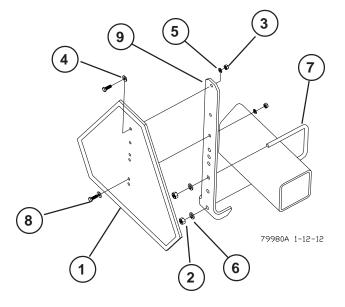


## SAFETY LIGHT ASSEMBLY





## **SAFETY**



The bracket provided is designed to mount to numerous frame sizes and can be orientated in numerous positions to avoid interference with implement components.

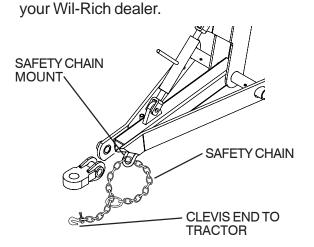
The SMV emblem is to be secured as near to the rear and centered, or as near to the left of center of the implement as possible.

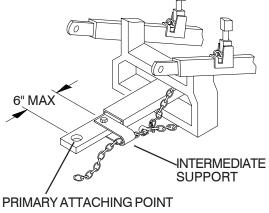
Emblem is to be 2 to 6 feet above the ground measured from the ground edge of the emblem.

ITEM	PART NO	DESCRIPTION	QTY
1	30651	SMV EMBLEM S276.6	1
2	88103	NUT HEX 3/8-16NC 5Z	2
3	88172	NUT HEX 1/4-20NC 5Z	2
4	88261	WSHR FLAT 1/4(5/16 X 3/4ACT) Z	2
5	88262	WSHR HLK 1/4ID(5/16ACT) Z	2
6	88362	WSHR HLK 3/8ID Z	2
7	88385	BLT-U 3/8-16NCX4X5 Z	1
8	88993	BLT HEX 1/4-20NC X 3/4 5Z	2
9	350933	SMV BRACKET	1

Keep safety decals clean. Replace any safety decals that are damaged, destroyed, missing, painted over or can no longer be read. Replacement safety decals are available through your dealer. The purpose of the safety chain is to provide an auxiliary attaching system to retain the connection between towing and towed machine in the event of separation of the primary attaching system. The safety chain should be hooked long enough to permit full turns. Unnecessary slack should be taken up.

Intermediate support is to be used if there is more than 6" of unsupported chain on either side of the primary attaching point. The intermediate support should not be mounted more than 6" from the primary attaching point. (See figure below) The intermediate support is available from





CI-77825